CLAIMS

What is claimed is:

1. An assembly for a die comprising:
a lid; and
a solderable thermally conductive element to couple a die to the lid.

2. The assembly recited in claim 1 wherein the lid comprises material from the group consisting of copper and aluminum-silicon-carbide.

3. The assembly recited in claim 1 wherein the solderable thermally conductive element comprises material, including one or more alloys, from the group consisting of tin, bismuth, silver, indium, and lead.

4. The assembly recited in claim 1 wherein the lid comprises at least one metal or organic layer to which the thermally conductive element can be coupled.

5. The assembly recited in claim 4 wherein the at least one metal or organic layer comprises nickel or gold.

6. The assembly recited in claim 1 and further comprising:
a die comprising at least one metal layer to which the solderable thermally conductive element can be coupled.

7. The assembly recited in claim 6 wherein the at least one metal layer comprises material, including one or more alloys, from the group consisting of titanium, chromium, zirconium, nickel, vanadium, and gold.

8. An integrated circuit package comprising:
a substrate;
a die positioned on a surface of the substrate;
a lid positioned over the die; and
a solderable thermally conductive element coupling the die and the lid.

9. The integrated circuit package recited in claim 8 wherein the lid comprises a support member coupled to the substrate.

10. The integrated circuit package recited in claim 8 wherein the lid comprises material from the group consisting of copper and aluminum-silicon-carbide.

11. The integrated circuit package recited in claim 8 wherein the lid comprises at least one metal or organic layer to which the thermally conductive element is coupled.

12. The integrated circuit package recited in claim 11 wherein the at least one metal or organic layer comprises nickel or gold.

13. The integrated circuit package recited in claim 8 wherein the solderable thermally conductive element comprises material, including one or more alloys, from the group consisting of tin, bismuth, silver, indium, and lead.

14. The integrated circuit package recited in claim 8 wherein the substrate is an organic substrate and wherein the die is coupled to the substrate through a land grid array.

15. The integrated circuit package recited in claim 8 wherein the die comprises at least one metal layer to which the thermally conductive element is coupled.

16. The integrated circuit package recited in claim 15 wherein the at least one metal layer comprises material, including one or more alloys, from the group consisting of titanium, chromium, zirconium, nickel, vanadium, and gold.

17. An electronic assembly comprising:

at least one integrated circuit package comprising:

a substrate;

a die positioned on a surface of the substrate;

a lid positioned over the die; and

a solderable thermally conductive element coupling the die and the lid.

18. The electronic assembly recited in claim 17 wherein the lid comprises a support member coupled to the substrate.

19. The electronic assembly recited in claim 17 wherein the solderable thermally conductive element comprises material, including one or more alloys, from the group consisting of tin, bismuth, silver, indium, and lead.

20. The electronic assembly recited in claim 17 wherein the substrate is an organic substrate and wherein the die is coupled to the substrate through a land grid array.

21. An electronic system comprising an electronic assembly having at least one integrated circuit package comprising:

a substrate;

a die positioned on a surface of the substrate;

a lid positioned over the die; and

a solderable thermally conductive element coupling the die and the lid.

22. The electronic system recited in claim 21 wherein the solderable thermally conductive element comprises material, including one or more alloys, from the group consisting of tin, bismuth, silver, indium, and lead.

23. The electronic system recited in claim 21 wherein the substrate is an organic substrate, wherein the die is coupled to the substrate through a land grid array, and wherein the lid comprises a support member coupled to the substrate.

24. A data processing system comprising:

a bus coupling components in the data processing system;

a display coupled to the bus;

external memory coupled to the bus; and

a processor coupled to the bus and comprising an electronic assembly including at least one integrated circuit package comprising:

a substrate;

a die positioned on a surface of the substrate;

a lid positioned over the die; and

a solderable thermally conductive element coupling the die and the lid.

25. The data processing system recited in claim 24 wherein the solderable thermally conductive element comprises material, including one or more alloys, from the group consisting of tin, bismuth, silver, indium, and lead.

26. The data processing system recited in claim 24 wherein the substrate is an organic substrate and wherein the die is coupled to the substrate through a land grid array.

27. A method of fabricating an integrated circuit package, the method comprising:

forming at least one metal layer on a surface of a die;

mounting the die on a substrate;

positioning a surface of a lid adjacent the layer of solder material; and

applying solder material between the at least one metal layer and the surface of the lid;

melting the solder material to physically couple the lid to the die.

28. The method recited in claim 27 wherein the solder material has a relatively high thermal conductivity and a relatively low melting point.

29. The method recited in claim 27 wherein the substrate comprises organic material having a relatively high thermal coefficient of expansion relative to that of the die.

30. The method recited in claim 27 and further comprising forming at least one metal or organic layer on the surface of the lid prior to applying solder material.